CLAIMS

1. A frequency offset quantity detecting apparatus comprising:

first detecting means for subtracting a previously held phase offset quantity owing to data modulation from a phase shift angle detected from one-symbol phase difference information of a received known symbol;

second detecting means for subtracting the previously held phase offset quantity owing to data modulation from a phase shift angle detected from two-symbol phase difference information of the received known symbol, and for multiplying the subtracted two-symbol phase difference information by 1/2; and

averaging means for averaging an output value of said first detecting means and an output value of said second detecting means for an arbitrary interval, and for outputting an averaged output value.

2. The frequency offset quantity detecting apparatus according to claim 1, said apparatus further comprising converting means for converting the received known symbol to a complex signal at a previous step of said first detecting means and said second detecting means.

3. The frequency offset quantity detecting apparatus according to claim 2, wherein said second detecting means includes an operation section for multiplying a phase angle of the complex signal by 1/2 by vector operation.

4. A communication terminal apparatus equipped with

a frequency offset quantity detecting apparatus, said frequency offset quantity detecting apparatus comprising:

first detecting means for subtracting a previously held phase offset quantity owing to data modulation from a phase shift angle detected from one-symbol phase difference information of a received known symbol;

second detecting means for subtracting the previously held phase offset quantity owing to data modulation from a phase shift angle detected from two-symbol phase difference information of the received known symbol, and for multiplying the subtracted two-symbol phase difference information by 1/2; and

averaging means for averaging an output value of said first detecting means and an output value of said second detecting means for an arbitrary interval, and for outputting an averaged output value.

5. A base station apparatus including a frequency offset quantity detecting apparatus, said frequency offset quantity detecting apparatus comprising:

first detecting means for subtracting a previously held phase offset quantity owing to data modulation from a phase shift angle detected from one-symbol phase difference information of a received known symbol;

second detecting means for subtracting the previously held phase offset quantity owing to data modulation from a phase shift angle detected from

two-symbol phase difference information of the received known symbol, and for multiplying the subtracted two-symbol phase difference information by 1/2; and

averaging means for averaging an output value of said first detecting means and an output value of said second detecting means for an arbitrary interval, and for outputting an averaged output value.

6. A frequency offset quantity detecting method comprising:

a first detecting step of subtracting a previously held phase offset quantity owing to data modulation from a phase shift angle detected from one-symbol phase difference information of a received known symbol;

a second detecting step of subtracting the previously held phase offset quantity owing to data modulation from a phase shift angle detected from two-symbol phase difference information of the received known symbol, and of multiplying the subtracted two-symbol phase difference information by 1/2; and

an averaging step of averaging an output value at said first detecting step and an output value at said second detecting step for an arbitrary interval, and of outputting an averaged output value.

7. The frequency offset quantity detecting method according to claim 6, said method further comprising a converting step of converting the received known symbol to a complex signal at a previous step of said first

detecting step and said second detecting step.

8. The frequency offset quantity detecting method according to claim 7, wherein in said second detecting step, a phase angle of the complex signal is multiplied by 1/2 by vector operation.